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QuickBooks is a general small business accounting software program. Some customization is needed to adapt it to the accounting needs of a small architecture practice.

## 8.3 Maintaining Financial Health

Peter Piven, FAIA

*Well-managed firms continually assess their financial health and take appropriate measures to stay on track.*

The glossary in Appendix E defines most of the financial terms used in this topic.

Architects aspire to financial health. The reason is simple—they cannot attain their practice goals unless they do. They must practice at whatever level of profitability is required to stay in business, fulfill promises made to clients, and fulfill their own practice goals, including providing appropriate rewards for performance and risk and a reasonable return on the investment of firm owners.

### MAJOR FINANCIAL PLANNING FACTORS

Financial health requires understanding, planning, monitoring, and controlling three interrelated aspects of the firm's financial picture:

- *Profitability* (the ability to create an excess of revenue over expenses)
- *Liquidity* (the ability to convert an asset to cash with relative speed and ease and without significant loss in value)
- *Solvency* (the ability to meet financial obligations as they come due)

### Profitability

Profitability is required at three levels:

- For the firm, generally in the form of retained or reinvested earnings, so it can provide for capital investment, endure downward economic cycles, and sustain growth

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- For those who produce the profit, as a reward for having done so
- For the risk taken by firm owners and as a return on their investment in the firm

By attending to profitability, architects ensure that they will not incur more expense than revenue on a project or on a firmwide basis. The normal project cash cycle includes three steps: performing services, invoicing, and collecting cash to cover the costs—both direct and indirect—of performing the services. If the architect manages successfully, this cycle not only yields sufficient cash to cover costs but also returns profit to the firm. Practicing at a loss means two things: There is no profit and, even worse, essential costs are not being covered. Regardless of whether the firm uses the cash method or the accrual method for its accounting, losses eventually result in a cash drain—more is expended than is taken in.

## Liquidity

In operating their practices, architects acquire both fixed (long-term) and current (short-term) assets. *Fixed assets* are assets such as real estate, leasehold improvements, furniture, fixtures, equipment, and automobiles that they do not intend to convert to cash in the foreseeable future. *Current assets* include both cash and other assets that must be converted to cash, especially *accounts receivable* (the value of services billed but not yet collected) and *work in progress* (the value of services performed but not yet billed).

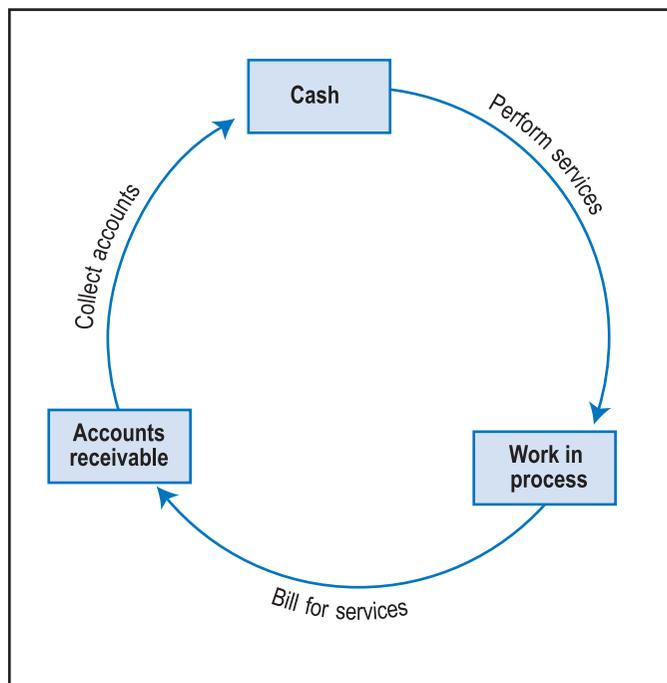
To keep a practice financially viable, the architect must maintain the liquidity of the firm; this is accomplished by invoicing regularly with the goal of continually converting work in progress to accounts receivable. Then, to convert accounts receivable to cash, the architect must follow up by assiduously maintaining collections.

## Solvency

Solvency is the firm's ability to pay its bills. Solvency and profitability are closely related; a firm that is unprofitable will, in the long run, not have enough money to pay its debts. In the extreme, the inability to pay debts when they come due leads to insolvency and bankruptcy.

► Financial Management Systems (8.2) describes the revenue and expenses, as well as cash and accrual accounting methods, of architecture firms.

► Project Controls (13.3) suggests strategies for invoicing and collecting payments.



Cash Cycle

## MANAGING CASH

Keeping solvent requires sound cash management. Solvency is a cash issue: How much cash is needed? For what purposes? When? From what sources?

Cash management is a systematic procedure for forecasting and controlling the cash that flows through the firm. The objective of cash management is to ensure that adequate cash is always on hand and that cash surpluses, when they exist, are invested wisely.

### Cash Flow Projections

The best tool for addressing these questions and evaluating firm solvency is *cash budgeting*. This involves forecasting anticipated flows of cash into and out of the firm over time by gathering and reporting information about the amounts, timing, and certainty of future cash receipts and payments. The cash budget predicts cash flow. Its purpose is to provide a plan to indicate when cash receipts and disbursements can be expected. The forecast should indicate needs for short-term borrowing as well as surpluses available for short-term investing.

The steps in developing a cash budget are listed here:

- Forecast billings
- Forecast amounts and timing of cash receipts (collections) from those billings
- Forecast cash receipts from sources other than project revenues, such as investments, rents, and sale of assets
- Forecast cash disbursements, including payroll, consultants, other direct (project) expenses, indirect (overhead) expenses, reimbursable expenses, and capital expenditures
- Combine receipt and disbursement schedules and calculate net monthly cash increases or decreases

Monthly increase or decrease, when combined with the beginning cash balance, indicates the cash position of the firm at the end of each month. The ending cash balance of one month is the beginning balance for the next month.

### Cash Flow Controls

Cash budgeting is planning in advance for cash that will be required in the future. Controlling cash flow requires measuring actual performance against the budget and taking corrective action as needed. Techniques for managing cash include the following:

- Sustaining backlog by developing a continuing flow of new projects and services
- Billing promptly and correctly, ensuring that clients are aware of the services provided
- Monitoring cash receipts and pursuing collections
- Controlling disbursements
- Preparing cash budgets on a regular basis and using them to monitor actual cash flow

Billing and collection are especially important in managing cash flow. From an overall practice perspective, clients who are slow to pay may be in the process of becoming less satisfied or even dissatisfied with the firm's professional service—or perhaps experiencing other problems that do not bode well for the project.

In managing cash flow, timely billing and collections are only half the problem; the other half involves controlling disbursements. Careful timing of disbursements can be an effective way to control cash outflow. The firm has more ability to control when it makes a disbursement than when it receives a cash payment. It can defer payment to vendors and other payees, reduce the draws or salaries of principals and, if necessary, borrow funds on a short-term basis.

If cash projections indicate a continuing deficit, financing from other, longer-term sources may be needed. Following are some possibilities:

- Refinancing a major asset with a long-term note or mortgage
- Adding capital from existing partners, new partners, or shareholders

## CASH FLOW PROJECTION PROCESS

This cash projection, made as of March 1, looks at anticipated revenues in terms of when the firm expects to collect them. For example, a total of \$72,000 was billed in January; of this, \$18,000 was paid in January, an additional \$43,200 in February, and the remaining \$10,800 is projected for collection in March. Similarly, 25 percent of the anticipated billing for March (\$16,500 of \$66,000) is expected to be earned in March, another 60 percent (\$39,600) in April, and the final 15 percent (\$9,900) in May.

Adding receipts from sources other than billings (e.g., interest) provides the total cash figure for each month. Subtracting disbursements leaves the firm with an expected monthly cash gain or loss. Adding the cash balance at the end of each previous month produces the projected cash balance for each month. Adding the actual \$3,000 cash balance from February to the projected \$7,900 net cash gain from March brings the month-ending cash balance for March to the \$10,900 shown.

Cash Flow Projection: March 1	January	February	March	April	May
Total billings					
Actual					
Projected	\$72,000	\$68,000	\$66,000	\$76,000	\$80,000
Collections on accounts receivable					
First month (25%)	18,000	17,000	16,500	19,000	20,000
Second month (60%)		43,200	40,800	39,600	45,600
Third month (15%)			10,800	10,200	9,900
Other (nonoperating) receipts			2,000	2,000	2,000
Total cash receipts (cash in)			\$70,100	\$70,800	\$77,500
Cash disbursements					
Direct expenses			\$29,800	\$31,000	\$34,000
Indirect expenses			32,000	35,000	30,400
Other (nonoperating disbursements)			400	0	12,000
Total cash disbursements (cash out)			\$62,200	\$66,000	\$76,400
Net cash gain (loss) during month			\$7,900	\$4,800	\$1,100
Cash balance at beginning of month			3,000	10,900	15,700
Cash balance at end of month		\$3,000	\$10,900	\$15,700	\$16,800

Robert F. Mattox, FAIA

- Retaining additional corporate earnings rather than distributing all profits
- Deferring capital or other expenditures

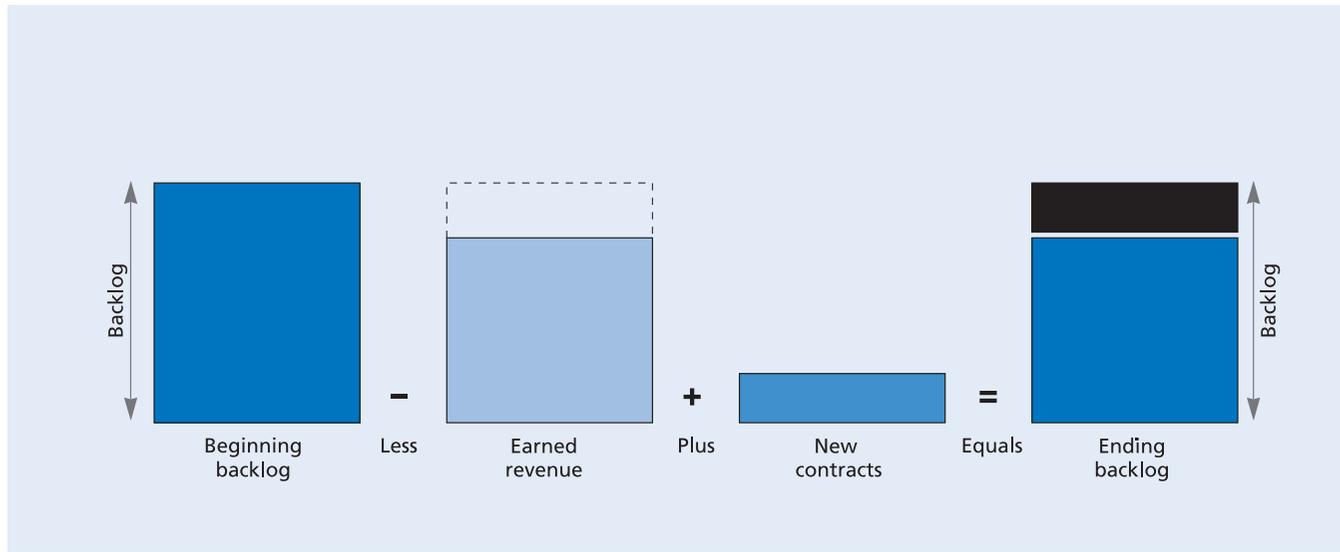
## FINANCIAL STRENGTH

There are many indicators of financial performance and financial health. Often these indicators are expressed as simple ratios of numbers created in everyday operations and reflected in the firm's income statement or balance sheet. These ratios can be useful in establishing the need for working capital, assessing productivity, managing overhead and project expenses, establishing fees, and seeking credit.

### Working Capital

The architect needs to know not only how much cash will be required to meet expenses in the near term but also the firm's general requirements for working capital. Working

► Acquiring Capital (8.4) explores sources of additional funds, both for financing short-term cash flow requirements and for longer-term growth.



Robert F. Mattox, FAIA, *Financial Management for Architects*

## Backlog

capital is the minimum amount of liquid capital needed to sustain the firm in business. More specifically, it is the minimum amount needed to maintain the flow from cash to work in progress to accounts receivable and again to cash. Practically, it is calculated in this way:

$$\text{Working capital} = \text{Current assets} - \text{Current liabilities}$$

Current assets include cash or other assets that are readily convertible into cash (such as work in progress and accounts or notes receivable). Current liabilities are liabilities that come due within the next 12 months.

## Receivables

The largest single current asset of an architecture firm is usually its accounts receivable. The liquidity of this asset is extremely important to the firm's financial well-being. It is critical to convert accounts receivable (receivables) to cash in a consistent and timely manner.

If the firm invoices for services at the end of the month in which services are performed and collects two months later, it will need funds to cover three months of operations. This amount represents one-quarter of the firm's annual revenues. Therefore, working capital requirements are closely related to the cycle on which the firm collects its receivables—its average collection period.

Although it is advisable to keep track of individual invoices rendered for collection purposes, it is also valuable to know the rate at which *all* invoices are being collected. The calculation is as follows:

$$\text{Average collection period (in days)} = \frac{\text{Accounts receivable}}{\div \text{Average revenue per day}}$$

To calculate the average revenue per day, divide gross revenues by the number of days in the period being considered. As a convention, most analysts use 30 days per month and 360 days per year.

Architects are well advised to keep the average collection period as close to 30 days as possible, although this time period will clearly be difficult to meet with certain kinds of clients.

## Revenues Per Employee

Another measure of financial health is earned revenue per employee. This ratio can be based on gross revenues (total revenues, including consultants and other project expenses)

or a net figure (after subtracting all project consultants and other nonsalary expenses). It can also be calculated per *technical* employee or for *all* employees. Gross revenue per total employees is probably a more useful figure in analyzing the firm's overall volume of activity (such as dollars expended for marketing and business development), while net revenue per total employees is most useful in analyzing matters of operational productivity (such as the effectiveness of computer-aided design systems).

### Firmwide Profit

As a percentage of net revenue, profit is an important indicator. Average profitability in the profession was low for many years, with some surveys reporting average profits, before taxes and discretionary distributions, in the range of 7 to 8 percent. More recently, profitability as a percentage of net revenue has increased to 11 to 12 percent, with some firms having profitability as high as 25 to 30 percent. A reasonably attainable profit for many firms might be in the 10 to 15 percent range. (Although it is possible to calculate profit as a percentage of gross revenue, profit divided by net revenue is a more useful and appropriate indicator because of the differences in the way firms use consultants and other nonsalary direct expenses, both firm-by-firm and project-by-project.)

## MANAGING OVERHEAD

To continue in practice, an architecture firm incurs indirect (overhead) expenses that are necessary to keep the firm in operation and that are not chargeable to any specific project. Indirect expenses can amount to 30 to 40 percent of revenues and 100 to 200 percent of direct salary expense.

Indirect expense must be managed. If it is too high, the firm will probably not be able to produce a profit, regardless of how efficiently projects are being produced. If it is too low, the firm may be spending too little on marketing, management, benefits, administrative services, or other important areas that ultimately affect the quality and quantity of its services.

### Indirect Expense Factor

It is important to understand the relationship between indirect expenses and projects. Although there are many ways to view this relationship, the most useful is the indirect expense (or overhead) factor, which is the ratio of all indirect expenses (including payroll burden and general and administrative expenses) to DSE:

$$\text{Indirect expense factor} = \text{Total indirect expense} \div \text{DSE}$$

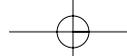
An indirect expense factor of 1.75, or 175 percent, indicates that the firm requires \$1.75 in indirect expense to support each \$1.00 of DSE; conversely, each \$1.00 of DSE requires \$1.75 in overhead. Although this ratio will fluctuate on a month-to-month basis, it is possible to plan for, monitor, and control overhead to keep the indirect expense factor appropriate for the firm.

If the firm finds its indirect expense factor acceptable (i.e., the firm is operating within its overhead budget), there may be no specific need to examine individual overhead items. If, on the other hand, the factor is higher than planned or desired, the architect should examine individual overhead items to identify areas of excess.

### Indirect Salary Expenses

The most important category of indirect expense is likely to be indirect salaries—salaries paid for clerical services, firm management, marketing, education and training, civic activities, downtime between project tasks, and paid time off, including vacation, holiday, sick, and personal time.

► Financial Planning (8.1) discusses the roles of overhead, direct salary expenses, and direct personnel expense.



## SAMPLE TIME ANALYSIS REPORT

This report, an excerpt from a standard report produced from Deltek Vision™ software, looks at the time reported by firm members over the past month, breaks it into direct and indirect hours, indicates the use of indirect hours (vacation, sick time, etc.), and calculates three

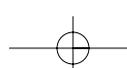
ratios: (A) direct hours divided by total hours charged, (B) direct hours divided by hours actually worked, and (C) the target ratio negotiated with each employee and entered into the system.

### Time Analysis Report: Apple & Bartlett, PC

As of March 31, 2008 1:17:38 PM

Period	Total Hours	Direct Hours	Indirect Hours	Ratio A	Ratio B	Ratio C	Vacation	Sick	Holiday	Bus dev	Mgmt	Acctg	Prof	Mktg
<b>Employee Number: 00001 Apple, William</b>														
<b>Employee Name: Apple, William</b>														
<b>00001 Apple, William</b>														
MTD	578	504	74	87	91	50	18	4	16	21	7			
YTD	2,440	2,187	253	90	91	50	26	4	32	38	81			
<b>Total for Apple, William</b>														
MTD	578	504	74	87	91	50	18	4	16	21	7			
YTD	2,440	2,187	253	90	91	50	26	4	32	38	81			
<b>Total For 00001</b>														
MTD	578	504	74	87	91	50	18	4	16	21	7			
YTD	2,440	2,187	253	90	91	50	26	4	32	38	81			
<b>Employee Number: 00002 Bartlett, James</b>														
<b>Employee Name: Bartlett, James</b>														
<b>00002 Bartlett, James</b>														
MTD	503	441	62	88	94	40	32	8	8	12				10
YTD	2,438	2,168	270	89	93	40	88	8	24	71	4			75
<b>Total for Bartlett, James</b>														
MTD	503	441	62	88	94	40	32	8	8	12				10
YTD	2,438	2,168	270	89	93	40	88	8	24	71	4			75
<b>Total for 00002</b>														
MTD	503	441	62	88	94	40	32	8	8	12				10
YTD	2,438	2,168	270	89	93	40	88	8	24	71	4			75
<b>Employee Number: 00003 Cohen, Grace</b>														
<b>Employee Name: Cohen, Grace</b>														
<b>00003 Cohen, Grace</b>														
MTD	319	307	12	96	99	65	8			4				
YTD	2,000	1,916	84	96	98	65	40			44				
<b>Total for Cohen, Grace</b>														
MTD	319	307	12	96	99	65	8			4				
YTD	2,000	1,916	84	96	98	65	40			44				
<b>Total for 00003</b>														
MTD	319	307	12	96	99	65	8			4				
YTD	2,000	1,916	84	96	98	65	40			44				

Note: Ratios: A = Direct/Total , B = Direct/(Total - Benefit), C = Target.



Low payroll utilization frequently contributes to excessive overhead. Utilization is the ratio between DSE and total salary expense:

$$\begin{aligned}\text{Time utilization ratio} &= \text{Direct hours (charged to projects)} \div \text{Total hours} \\ \text{Payroll utilization ratio} &= \text{DSE} \div \text{Total salary expense}\end{aligned}$$

The most important thing to understand about utilization ratios is this: As the amount of personnel time and expense charged to projects *decreases*, overhead time and expense *increases* (given a stable staff). Under normal circumstances, shifting staff from project assignments to overhead activities will result in reduced project effort and revenues and, at the same time, increased indirect salary expense and increased total overhead.

Two instruments can be used to monitor utilization:

- A time analysis that records individual and cumulative expenditures of staff time
- An income statement that records direct and indirect salary expenses

Note, too, that utilization is a valid measure only to the extent that the firm is *actually paid* for the direct labor. Charged time is not always billable time. Charging time to projects without expecting to bill the client (as in the case of a fixed fee that is already spent) will result in a flawed view of utilization; the utilization ratio will be high, suggesting low overhead and efficient operations, but the profit will be reduced. On the other hand, it is important for staff to report their chargeable time so that the firm has an accurate idea for estimating future projects. Some firms report using a utilization ratio (UR) chart in combination with a project progress report, which compares actual to budgeted time, as an effective way of managing office efficiency.

### Other Indirect Expenses

If overhead is excessive and indirect salary is not the cause, a review of the other items on the firm's indirect expense budget is in order.

These items can be budgeted by projecting prior-year expenses forward, by considering specific new needs, or by using a zero-based budgeting technique that requires thoughtful consideration and justification of any item to be included. Individual items (accounts), subtotals, and totals can be planned and monitored either absolutely (i.e., with the specific dollar amounts) or relative to other items, such as total payroll, total expenses, or total revenues. Exceptions or variances from budget should be noted and examined and corrective action taken as appropriate. If it is not possible to modify overhead expenses to bring them within the budget, it is usually necessary to revise the firm's overall financial plan.

## MANAGING PROJECT EXPENSES

Project expenses include DSE, consultants, and other direct expenses, such as project-related travel, reproductions, models and renderings, long-distance telephone calls, and similar expenses. Of these, the largest expense—and the one over which the architect has the most control—is DSE, the salaries of the staff engaged on projects. The two most important principles in managing DSE are as follows:

- *Utilization* (keeping the staff engaged on projects)
- *Productivity* (the degree to which the direct efforts of the firm can generate revenue; this is measured by the net multiplier)

The most common instrument for measuring productivity is the net multiplier, which measures the dollars of revenue generated by the firm overall or on a project basis (net revenue excludes the cost of consultants and other nonsalary direct expenses, such as travel, reproductions, postage, long-distance telephone, and so on, whether reimbursable or not) as a ratio of each dollar of DSE:

$$\text{Net multiplier} = \text{Net revenues} \div \text{DSE}$$

► Financial Planning (8.1) describes methods for calculating net multipliers and break-even multipliers.

► Financial Planning (8.1) describes planning and budgeting in general.

The net multiplier is the best basis for measuring productivity because it eliminates all pass-through expenses, leaving as net revenue only those revenues produced by the firm's own forces. A net multiplier of 3.0, for example, indicates that each \$1.00 of DSE is generating \$3.00 of revenue for the firm.

As suggested in the "Financial Planning" topic in this chapter, it is possible to look at an architecture firm as a series of DSE multipliers. For example:

To pay for DSE:	\$1.00
To pay for indirect expenses:	\$1.50 (\$1.50 = 1.5)
Break-even:	\$2.50 (DSE multiplier = 2.5)
Profit:	\$0.50 (\$1.00 ÷ 2.00 = 0.50)
Revenue:	\$3.00 (Net DSE multiplier = 3.0)

Multipliers are useful in project pricing and in overall firm planning—especially in comparing current multipliers with past performance and with those reported by other architecture firms. Architects commonly establish anticipated project expenses by determining the hours (and thus the DSE) needed to perform services and by using the firm's multipliers to be sure indirect expenses and profit are appropriately considered.

Generally speaking, clients do not need to know about a firm's use of multipliers, unless the firm chooses to inform them. Some approaches to compensating architects, for example, involve multiples of DSE or DPE. (The latter approach includes the payroll burden associated with DSEs as part of the base rather than as an indirect expense.)

For architecture firms that do not provide engineering services in-house, consultant expenses may equal or exceed DSE, especially on large, complex projects. Other direct expenses, such as travel, reproductions, models, and renderings, are generally in the range of 20 to 25 percent of DSE.

Sound management of project expenses requires planning these expenses before they are incurred (creating a project budget and work plan), monitoring revenues and expenses as the project proceeds, and taking corrective action when actual performance varies from the plan.

### For More Information

In Chapter 4 of *An Architect's Guide to Financial Management* (AIA Press, 1997), Lowell V. Getz describes financial ratios and analytical methods used to measure the financial health of a firm.

The AIA undertakes periodic firm surveys, which include a number of statistics related to firm billings. *The Business of Architecture: 2006 AIA Firm Survey* contains data on billings by firm size and per employee. Other surveys are listed below. Check the AIA Web site ([www.aia.org](http://www.aia.org)) for availability, coverage, and prices.

The *Deltek Operating Statistics Survey*, published by Deltek Systems, Inc., can be downloaded from [www.deltek.com](http://www.deltek.com).

*PSMJ Financial Statistics Survey*, published by PSMJ, is available from Practice Management Associates, 10 Midland Avenue, Newton, MA 02158, (617) 965-0055. PSMJ also publishes surveys on design fees, executive compensation, and human resources practices. Its Web address is [www.psmj.com](http://www.psmj.com).

ZweigWhite publishes several surveys on financial performance, finance, and accounting for architects, engineers, and environmental consultants. For a complete list, contact ZweigWhite Research at One Apple Hill Drive, Suite 2, Natick, MA 01760; (800) 466-6275; or [www.zweigwhite.com/research](http://www.zweigwhite.com/research).

The Institute of Management and Administration (IOMA) publishes monthly newsletters and an extensive series of guides about cost management and control. Contact IOMA at (212) 244-0360 or [www.ioma.com](http://www.ioma.com).